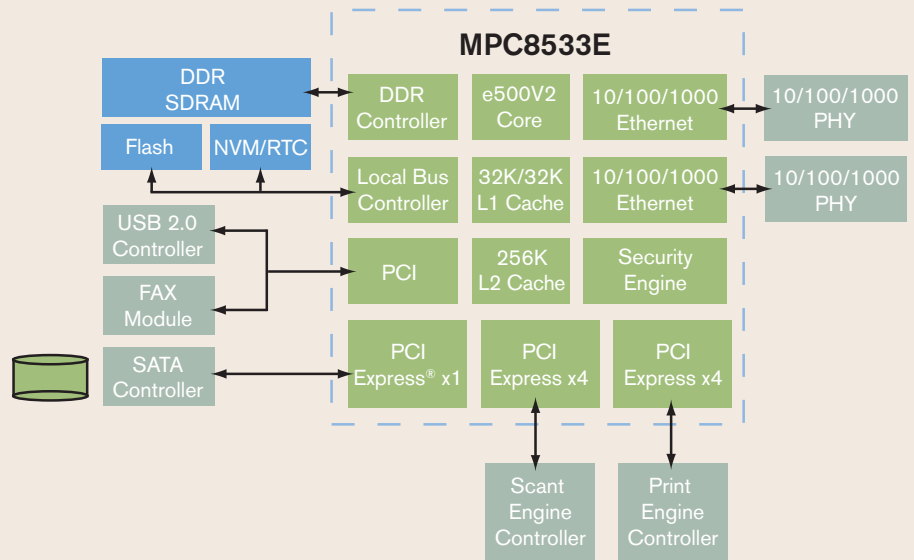


Multifunction Office Printer Solution Built on Power Architecture™ Technology

Freescale's PowerQUICC™ communications processors have been providing innovative printing and imaging solutions for more than a decade. Freescale combines the high-performance, low-power benefits of Power Architecture™ technology with the extensive on-chip integration of high performance communications interfaces, vector acceleration blocks, security processing and peripherals—resulting in processors that address the complexities of high-speed printing and multifunction (MFP) office printing equipment.

MFPs introduce opportunities for office equipment providers beyond supplying traditional hardware equipment and printing consumables such as ink. MFPs still print, scan and copy, but that is only the beginning of the valuable services this equipment can bring to the designer and customer. The MFP can be a workflow platform that provides services for enhancing the efficiency, effectiveness and creativity of the office environment. For the designer, this translates into meeting the challenges of concurrency of application execution, fast responsiveness of the color processing system and built-in scalability.

MPC8533E FAMILY BLOCK DIAGRAM



Designer Challenges

- > Produce high-end feature sets at mainstream market prices
- > Build scalability into the system for application services expansion
- > Expand image quality through a broader color range and extended image resolution
- > Balance the demands of concurrent real-time processes within the MFP application
- > Integrate services for ubiquitous secure networking
- > Maintain print speed in a secure encrypted environment
- > Remain cognizant of market price pressure to reduce cost
- > Implement multigigabyte interconnect bus for large image data movements
- > Minimize power usage per industry-standard mandates

Freescale Solutions

Freescale's extensive product portfolio provides printing and imaging OEM and ODM developers a wide choice of solutions to meet the concurrent control processing, rapid data movement and math-intensive data plane processing challenges of hardcopy controllers. The design challenge of balancing performance, power and cost can be easily solved by the trail-blazing performance of Freescale's vector acceleration blocks—AltiVec™, found in Freescale's e600 cores, and signal processing engine (SPE) found in the e500 core-based products—rip through the most difficult page descriptive language needed for the print job.

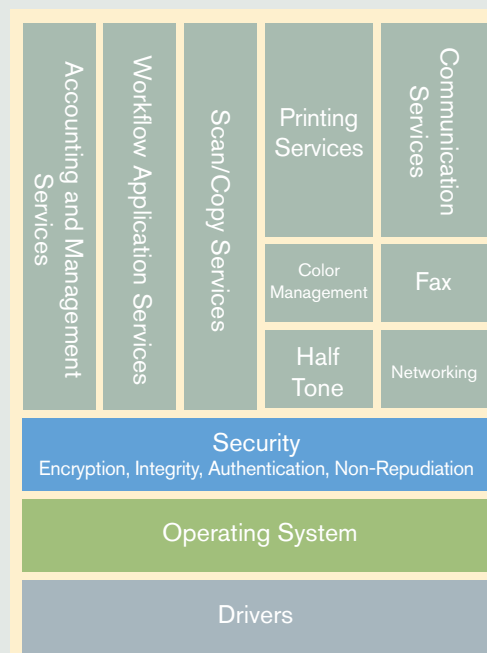
Color use in multifunction printing has hit the main-stream of business applications. Designers are challenged to meet the extensive CPU demands of fast color page processing and concurrency of services applications within the cost and power budgets for mainstream products. The CPU clock rate is only one dimension of the equation. Fast color page processing requires support for large numbers of memory arrays that represent

a color-rastered image. PCI Express® is the ideal data path link for interconnect technology. For example, the MPC8533E PCI Express, with one of its four lanes per port, is able to achieve 2 GB (full duplex) data transfer. Compare this to a traditional PCI bus delivering 133 MB over a shared bus. PCI Express is an attractive solution for high-speed imaging applications.

Government regulatory mandates and new standards like Sarbanes-Oxley, Common Criteria and the upcoming IEEE® P2600 make integration of security a mandatory feature for the next generation of hardcopy equipment. The MPC8533E integrates Freescale's market-proven security engine, enabling encryption, data integrity, authentication and non-repudiation. Equally important is the hardware acceleration capability on the MPC8533E to minimize the impact to the advertised page per-minute rate of the equipment, whether confidentiality is required or not.

With technology convergence and integration demands rising at every level of hardware development, Freescale's Power Architecture technology is uniquely

MFP APPLICATION



positioned to enable greater freedom and flexibility to meet the challenges of fast color processing and application concurrency for the next generation of hardcopy equipment designs:

Start your designs with Power Architecture technology today.

MPC8533E Key Features and Benefits

- > High-Performance Processing
 - 667 MHz–1.0 GHz e500v2 CPU
 - 32 KB/32 KB Data/Instruction L1 Cache
 - 256 KB L2 Cache/SRAM, 8-way
 - Hardware Acceleration
 - > Double Precision Floating Point APU
 - > Signal Processing Engine APU
 - > eTSEC TCP Offload
 - > Security Engine

- > Supports Ubiquitous Secure Networks
 - Ethernet: Two 10/100/1000 MACs w/Wake-on-LAN
 - Security: DES/3DES, MD5/SHA-1, AES, RNG, PKEU, RC4
- > Open-Standard High-Speed Buses
 - PCI Express
 - > Dual x4
 - > Single x1
 - Legacy Local Bus and PCI

- > Low-Power Operation
 - Low-Power Fanless Dynamic Operation
 - Low-Power Static Sleep Modes

Learn More: For more information about Freescale Semiconductor products, please visit www.freescale.com.



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